NOV 10 2004
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Applicants: David C. Chan, Deborah Fass, Min Lu, James M. Berger and Peter S. Kim

Application No.: 10/680,853 Group Art Unit: 1648

Filed: October 7, 2003 Examiner: Not Provided

Confirmation No.: 7931

Title: CORE STRUCTURE OF GP41 FROM THE HIV ENVELOPE GLYCOPROTEIN

CERTIFICATE OF MAILING OR TRANSMISSION

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INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Information Disclosure Statement is submitted:

[ ] under 37 CFR 1.129(a), or
(First/Second submission after Final Rejection)

[X] under 37 CFR 1.97(b), or
(Within any one of the following time periods: three months of filing national application (other than a CPA) or date of entry of the national stage in an international application; or before the mailing date of a first office action on the merits in a non-provisional application, including a CPA, or a Request for Continued Examination).

[ ] under 37 CFR 1.97(c) together with either:

[ ] a Statement under 37 CFR 1.97(e), as checked below, or

[ ] a $180.00 fee under 37 CFR 1.17(p), or
(After the 37 CFR 1.97(b) time period, but before final action or notice of allowance, whichever occurs first)

[ ] under 37 CFR 1.97(d) together with:

[ ] a Statement under 37 CFR 1.97(e), as checked below, and

[ ] a $180.00 fee under 37 CFR 1.17(p), or
(Filed after final action or notice of allowance, whichever occurs first, but on or before payment of the issue fee)

[ ] under 37 CFR 1.97(i):
Applicant requests that the IDS and cited reference(s) be placed in the application filewrapper.
(Filed after payment of issue fee)

Statement Under 37 CFR 1.97(e)

[ ] Each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement; or

[ ] No item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the undersigned, after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of this Information Disclosure Statement.

Statement Under 37 CFR 1.704(d) (Patent Term Adjustment)
Applies to original applications (other than design) filed on or after May 29, 2000

[ ] Each item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application and this communication was not received by any individual designated in § 1.56(c) more than thirty days prior to the filing of the Information Disclosure Statement.

[X] Enclosed herewith is form PTO-1449:

[X] Copies of the cited references (AT11-AX11) are enclosed.

[X] Since this application was filed after June 30, 2003, copies of issued U.S. patents and published U.S. applications are not required and are not being provided.

[X] Copies of the cited references are enclosed except those entered in prior application, U.S. Application No. 09/062,241, to which priority under 35 U.S.C. 120 is claimed. The earlier application contains copies of the cited references.

[ ] The listed references were cited in the enclosed International Search Report in a counterpart foreign application.

[ ] The "concise explanation" requirement (non-English references) for reference(s) [ ] under 37 CFR 1.98(a)(3) is satisfied by:

[ ] the explanation provided on the attached sheet.

[ ] the explanation provided in the Specification.

[ ] submission of the enclosed International Search Report.

[ ] submission of the enclosed English-language version of a foreign Search Report and/or foreign Office Action.

[ ] the enclosed English language abstract.

[ ] Applicant requests that the following non-published pending applications be considered:

Examiner's Initials

_____ U.S. Patent Application No. [ ], by [ ], filed [ ], Docket No.: [ ].

_____ U.S. Patent Application No. [ ], by [ ], filed [ ], Docket No.: [ ].

_____ U.S. Patent Application No .[ ], by [ ], filed [ ], Docket No.: [ ].

_____ U.S. Patent Application No. [ ], by [ ], filed [ ], Docket No.: [ ].

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Examiner Date

[ ] A copy of each above-cited application, including the current claims, is enclosed.

[ ] A copy of each above-cited application, including the current claims, is enclosed, except those entered in prior application, U.S. Application No. [ ], to which priority under 35 U.S.C. 120 is claimed.

The Examiner is requested to return a copy of the above list of pending applications indicating which references were considered with the next office communication.

It is requested that the information disclosed herein be made of record in this application.

Method of payment:

[ ] A check for the fee noted above is enclosed, or the fee has been included in the check with the accompanying Reply. A copy of this Statement is enclosed.

[ ] Please charge Deposit Account 08-0380 in the amount of $[ ]. A copy of this Statement is enclosed.

[X] Please charge any deficiency in fees and credit any overpayment to Deposit Account 08-0380.

Respectfully submitted,

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

By Vivien Tannoch-Magin

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Dated: Nov. 8, 2004

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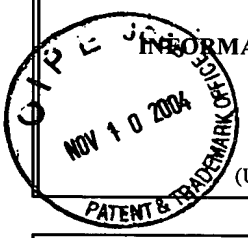

INFORMATION DISCLOSURE CITATION IN AN APPLICATION

November 8, 2004

(Use several sheets if necessary)

ATTORNEY DOCKET NO.	APPLICATION NO.	
0399.1167-007	10/680,853	
FIRST NAMED INVENTOR	FILING DATE	
David C. Chan, *et al.*	October 7, 2003	
EXAMINER	CONFIRMATION NO.	GROUP
Not Provided	7931	1648

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	REF. NO.	DOCUMENT NUMBER Number-Kind Code (if known)	ISSUE DATE / PUBLICATION DATE MM-DD-YYYY	NAME OF PATENTEE OR APPLICANT OF CITED DOCUMENT
	AA	5,444,044	08/22/1995	Jiang *et al.*
	AB	5,464,933	11/07/1995	Bolognesi *et al.*
	AC	5,656,480	08/12/1997	Wild *et al.*
	AD	5,840,843	11/24/1998	Jiang *et al.*
	AE	6,150,088	11/21/2000	Chan *et al.*
	AF	2002/0077284	06/20/2002	Eckert *et al.*
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	AH	2003/0082525	05/01/2003	Root *et al.*
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	AD2			
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FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER Country Code-Number-Kind Code (if known)	DATE MM-DD-YYYY	NAME OF PATENTEE OR APPLICANT OF CITED DOCUMENT	TRANSLATION YES	TRANSLATION NO
	AL	WO 94/02505	02/03/1994			
	AM	WO 96/40191	12/19/1996			
	AN	WO 98/32848A	07/30/1998			
	AO	WO 00/06599	02/10/2000			
	AP	WO 00/40616	07/13/2000			
	AQ	WO 01/03723 A1	01/18/2001			
	AL2	WO 01/44286 A2	06/21/2001			
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		OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*
	AR	Baum, Rudy, "Virus-cell Fusion Targeted for Drug Development," C&EN (1996).
	AS	Blacklow, Stephen C., et al., "A Trimeric Subdomain of the Simian Immunodeficiency Virus Envelope Glycoprotein," Biochemistry, 34(46):14955-14962 (1995).
	AT	Blake, James and Li, Choh Hao, "Adrenocorticotropin. 47. Synthesis and Biological Activity of Adrenocorticotropic Peptides Modified at the Tryptophan Position," J. Medicinal Chem. 18(4):423-426 (1975).
	AU	Borchardt, Allen et al., "Small Molecule-dependent genetic selection in stochastic nanodroplets as a means of detecting protein-ligand interactions on a large scale," Chem. & Biol. 4(12):961-968 (1997).
	AV	Bullough, Per A. et al., "Structure of influenza haemagglutinin at the pH of membrane fusion," Nature 371:37-43 (1994).
	AW	Caffrey, Michael et al., "Three-dimensional solution structure of the 44kDa ectodomain of SIV gp41," EMBO J. 17(16):4572-4584 (1998).
	AX	Cao, Jie et al., "Effects of Amino Acid Changes in the Extracellular Domain of the Human Immunodeficiency Virus Type 1 gp41 Envelope Glycoprotein," J. Virology 67(5):2747-2755 (1993).
	AY	Chabala, John C., "Solid-phase combinatorial chemistry and novel tagging methods for identifying leads," Curr. Opin. Biotech. 6:632-639 (1995).
	AZ	Chakrabartty, Avijit et al., "Aromatic Side-Chain Contribution to Far-Ultraviolet Circular Dichroism of Helical Peptides and Its Effect on Measurement of Helix Propensities," Biochemistry 32:5560-5565 (1993).
	AR2	Chambers, Philip, et al., "Heptad Repeat Sequences are Located Adjacent to Hydrophobic Regions in Several Types of Virus Fusion Glycoproteins," Journal of General Virology, 71:3075-3080 (1990).
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		OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*
	AT2	Chan, David C., et al., "Core Structure of gp41 from the HIV Envelope Glycoprotein," Cell 89:263-273 (1997).
	AU2	Chan, David C. and Kim, Peter A., "HIV Entry and Its Inhibition," Cell 93:681-684 (1998).
	AV2	Chen, Yee-Hsiung et al., "Determination of the Helix and Form of Proteins in Aqueous Solution by Circular Dichroism," Biochemistry 13(16):3350-3359 (1974).
	AW2	Chen, Benjamin K. et al., "Distinct Modes of Human Immunodeficiency Virus Type 1 Proviral Latency Revealed by Superinfection of Nonproductively Infected Cell Lines with Recombinant Luciferase-Encoding Viruses," J. Virology 68(2):654-660 (1994).
	AX2	Chen, Charlie L. et al., "One Bead-One Compound Combinatorial Peptide Library: Different Types of Screening," Methods in Enzymology 267:211-219 (1996).
	AY2	Chen, Chin-Ho et al., "A Molecular Clasp in the Human Immunodeficiency Virus (HIV) Type 1 TM Protein Determines the Anti-HIV Activity of gp41 Derivatives:Implication for Viral Fusion," J. Virology 69(6):3771-3777 (1995).
	AZ2	Cole, James L. and Garsky, Victor M., "Thermodynamics of Peptide Inhibitor Binding to HIV-1 gp41," Biochemistry 40:5633-5641 (2001).
	AR3	Delwart, Eric L., et al., "Retroviral Envelope Glycoproteins Contain a "Leucine Zipper"-like Repeat," AIDS Research and Human Retroviruses, 6(6):703-706 (1990).
	AS3	Doering Don S. and Matsudaira, Paul, "Cysteine Scanning Mutagenesis at 40 of 76 Positions in Villin Headpiece Maps the F-Actin Binding Site and Structural Features of the Domain," Biochemistry 35:12677-12685 (1996).
	AT3	Dutch, Rebecca Ellis et al., "Paramyxovirus Fusion Protein: Characterization of the Core Trimer, a Rod-Shaped Complex with Helices in Anti-Parallel Orientation," Virology 254:147-159 (1999).
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	AX3	Edelhoch, Harold, "Spectroscopic Determination of Tryptophan and Tyrosine in Proteins," Biochemistry 6:(7):1948-1954 (1967).
	AY3	Fass, Deborah et al., "Retrovirus envelop domain at 1.7 resolution," Nature Structural Biology 3(5):465-469 (1996).
	AZ3	Fass, Deborah and Kim, Peter S., "Dissection of a retrovirus envelope protein reveals structural similarity to influenza hemagglutinin," Current Biology 5(12):1-7(1995).
	AR4	Furuta et al., "Capture of an early fusion-active conformation of HIV-1 gp41," Nature Structural Biology 5(4):276-279 (1998).
	AS4	Gallaher, William R., et al., "A General Model for the Transmembrane Proteins of HIV and Other Retroviruses," Aids Research and Human Retroviruses, 5(4):431-440 (1989).
	AT4	Harbury, Pehr B. et al., "Repacking protein cores with backbone freedom:Structure prediction for coiled coils," Proc. Natl. Acad. Sci, USA 92:8408-8412 (1995).
	AU4	Harbury, Pehr B. et al., "Crystal structure of an isoleucine-zipper trimer," Nature 371:80-83 (1994).
	AV4	Hirsch, Vanessa M. and Johnson, Philip R., "Pathogenic diversity of simian immunodeficiency viruses," Virus Research 32:183-206 (1994).
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	AY4	Jiang, S. et al., "A screening assay for antiviral compounds targeted to the HIV-1 gp41 core structure using a conformation-specific monoclonal antibody," J. Virol. Methods 80:85-96 (1999).

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		OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*
	AZ4	Jiang, Shibo et al., "HIV-1 inhibition by a peptide," Nature 365:113 (1993).
	AR5	Jones, T.A. et al., "Improved Methods for Building Protein Models in Electron Density Maps and the Location of Errors in these Models," Acta Cryst. A47:110-119 (1991).
	AS5	Judice, J. Kevin et al., "Inhibition of HIV type 1 infectivity by constrained -helical peptides:Implications for the viral fusion mechanism," Proc. Natl. Acad. Sci. USA 94:13426-13430 (1997).
	AT5	Kilby, J. Michael et al., "Potent suppression of HIV-1 replication in humans by T-20, a peptide inhibitor of gp41-mediated virus entry," Nature Medicine 4(11):1302-1307 (1998).
	AU5	Kliger, Yossef et al., "Mode of Action of an Antiviral Peptide from HIV-1," J. Biol. Chem. 276(2):1391-1397 (2001).
	AV5	Kozarsky, Karen et al., "Glycosylation and Processing of the Human Immunodeficiency Virus Type 1 Envelope Protein," J. Acquired Immune Deficiency Syndromes 2:163-169 (1989).
	AW5	Kubinyi, Hugo, "Combinatorial and computational approaches in structure-based drug design," Curr. Op. In Drug Disc. & Dev. 1(1):16-22 (1998).
	AX5	Kuntz, Irwin D., "Structure-Based Strategies for Drug Design and Discovery," Science 257:1078-1082 (1992 August).
	AY5	LaCasse, Rachel A. et al., "Fusion-Competent Vaccines: Broad Neutralization of Primary Isolates of HIV," Science 283:357-362 (1999).
	AZ5	Lam, Kit S. et al., "A new type of synthetic peptide library for identifying ligand-binding activity," Nature 354:82-84 (1991).
	AR6	Lambert, D.M. et al., "Peptides from conserved regions of paramyxovirus fusion (F) proteins are potent inhibitors of viral fusion," Proc. Natl. Acad. Sci. USA 93:2186-2191 (1996).
	AS6	Letvin, Norman L., "Progress in the Development of an HIV-1 Vaccine," Science 280:1875-1880 (1998).

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	AT6	Li, Zhe, et al., "Anti-malarial Drug Development Using Models of Enzyme Structure," Chemistry & Biology, 1:31-37 (1994).
	AU6	Lu, Min, et al., "A Trimeric Structural Domain of the HIV-1 transmembrane glycoprotein," Nature Structural Biology, 2(12):1-8 (1995).
	AV6	Lu, Min and Kim, Peter S., "A Trimeric Structural Subdomain of the HIV-1 Transmembrane Glycoprotein," J. Biomol. Structure & Dynamics 15(3):465-471 (1997).
	AW6	Malashkevich, Vladimir N. et al., "Crystal structure of the simian immunodeficiency virus (SIV) gp41 core: Conserved helical interactions underlie the broad inhibitory activity of gp41 peptides," Proc. Natl. Acad. Sci. USA 95:9134-9139 (1998).
	AX6	Meng, Elaine C., et al., "Automated Docking with Grid-Based Energy Evaluation," Journal of Computational Chemistry, 13(4):505-524 (1992).
	AY6	Muster, Thomas et al., "Cross-Neutralizing Activity against Divergent Human Immunodeficiency Virus Type 1 Isolates Induced by the gp41 Sequence ELDKWAS," J. Virology 68(6):4031-4034 (1994).
	AZ6	Muster, Thomas et al., "A Conserved Neutralizing Epitope on gp41 of Human Immunodeficiency Virus Type 1," J. Virology 67(11):6642-6647 (1993).
	AR7	Nautiyal, Shivani and Alber, Tom, "Crystal structure of a designed, thermostable, heterotrimeric coiled coil," Protein Science 8:84-90 (1999).
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	AT7	O'Neil, Karyn T. and DeGrado, William F., "A Thermodynamic Scale for the Helix-Forming Tendencies of the Commonly Occurring Amino Acids," Science 250:646-351 (1990).
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	AV7	Reimann, Keith A. et al., "A Chimeric Simian/Human Immunodeficiency Virus Expressing a Primary Patient Human Immunodeficiency Virus Type 1 Isolate env Causes an AIDS-Like Disease after In Vivo Passage in Rhesus Monkeys," J. Virology 70(10):6922-6928 (1996).
	AW7	Richman, Douglas D., "Nailing down another HIV target," Nature Medicine 4(11):1232-1233 (1998).
	AX7	Rimsky, Laurence T. et al., "Determinants of Human Immunodeficiency Virus Type 1 Resistance to gp41-Derived Inhibitory Peptides," J. Virology 72(2):986-993 (1998).
	AY7	Ring, Christine S., et al., "Structure-based Inhibitor Design by Using Protein Models for the Development of Antiparasitic Agents," Proc. Natl. Acad. Sci. USA, 90:3583-3587 (1993).
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	AR8	Schumacher, Ton N.M. et al., "Identification of D-Peptide Ligands Through Mirror-Image Phage Display," Science 271:1854-1857 (1996).
	AS8	Shuker, Suzanne B. et al., "Discovering High-Affinity Ligands for Proteins: SAR by NMR," Science 274:1531-1534 (1996).
	AT8	Singh, Mona et al., "LearnCoil-VMF: Computational Evidence for Coiled-coil-like Motifs in Many Viral Membrane-fusion Proteins," J. Mol. Biol. 290:1031-1041 (1999).
	AU8	Tan, Kemin et al., "Atomic structure of a thermostable subdomain of HIV-1 gp41," Proc. Natl. Acad. Sci. USA 94:12303-12308 (1997).
	AV8	Tarrago-Litvak, Laura et al., "The reverse transcriptase of HIV-1: from enzymology to therapeutic intervention," FASEB J. 8:497-503 (1994).
	AW8	Tucker, Thomas J. et al., "Development of Nonnucleoside HIV Reverse Transcriptase Inhibitors," Methods in Enzymology 275:440-472 (1996).
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	AY8	Weissenhorn, Winfried et al., "Assembly of a rod-shaped chimera of a trimeric GCN4 zipper and the HIV-1 gp41 ectodomain expressed in Escherichia coli," Proc. Natl. Acad. Sci. USA 94:6065-6069 (1997).
	AZ8	Weissenhorn, W. et al., "Atomic structure of the ectodomain from HIV-1 gp41," Nature 387:426-430 (1997).
	AR9	Weissenhorn, Winfried et al., "Crystal Structure of the Ebola Virus Membrane Fusion Subunit, GP2, from the Envelope Glycoprotein Ectodomain," Molecular Cell 2:605-616 (1998).
	AS9	Wild, Carl et al., "A synthetic peptide inhibitor of human immunodeficiency virus replication: Correlation between solution structure and viral inhibition," Proc. Natl. Acad. Sci. USA 89:10537-10541 (1992).
	AT9	Wild, Carl T. et al., "Peptides corresponding to a predictive -helical domain of human immunodeficiency virus type 1 gp41 are potent inhibitors of virus infection," Proc. Natl. Acad. Sci. USA 91:9770-9774 (1994).
	AU9	Williams, Kelly P. et al., "Bioactive and nuclease-resistant l-DNA ligand of vasopressin," Proc. Natl. Acad. Sci. USA 94:11285-11290 (1997).
	AV9	Youngquist, R. Scott et al., "Generation and Screening of Combinatorial Peptide Libraries Designed for Rapid Sequencing by Mass Spectrometry," J. Am. Chem. Soc. 117:3900-3906 (1995).
	AW9	Malashkevich, Vladimir N. et al., "Core structure of the envelope glycoprotein GP2 from Ebola virus at 1.9- resolution," Proc. Natl. Acad. Sci. USA 96:2662-2667 (1999).
	AX9	Ferrer, Marc et al., "Selection of gp41-mediated HIV-1 cell entry inhibitors from biased combinatorial libraries of non-natural binding elements," Nature Structural Biology 6(10):953-960 (1999).
	AY9	Jiang, Shibo et al., "Development of HIV Entry Inhibitors Targeted to the Coiled-Coil Regions of gp41," Biochemical and Biophysical Research Communications 269(3):641-646 (2000).

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		OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*
	AZ9	Yang, Xinzhen et al., "Characterization of Stable, Soluble Trimers Containing Complete Ectodomains of Human Immunodeficiency Virus Type 1 Envelope Glycoproteins," J. Virol. 74(12):5716-5725 (2000).
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EXAMINER	DATE CONSIDERED

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November 8, 2004	FIRST NAMED INVENTOR	FILING DATE	
(Use several sheets if necessary)	David C. Chan, *et al.*	October 7, 2003	
	EXAMINER	CONFIRMATION NO.	GROUP
	Not Provided	7931	1648

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	AR11	Bernstein, Helene B., et al., "Oligomerization of the Hydrophobic Heptad Repeat of gp41," J. Virology, 69(5): 2745-2750 (1995).
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EXAMINER	DATE CONSIDERED